ARIZONA GAME AND FISH DEPARTMENT
HABITAT PARTNERSHIP COMMITTEE
HABITAT ENHANCEMENT AND WILDLIFE MANAGEMENT PROPOSAL

Game Branch / HPC Project Number:	12-511

PROJECT INFORMATION

Project Title: Buenos Aires National Wildlife Refuge (BANWR) wildlife water troughs

Region and Game Management Unit: Region V, GMU 36A/B

Local Habitat Partnership Committee (LHPC):
- Tucson

Was the project presented to the LHPC?
YES[] **NO**[X]

Has this project been submitted in previous years? YES[] **NO**[X]
If Yes, was it funded? YES[] **NO**[] → **Funded HPC Project #(s)**:

Project Type: Water distribution multi-phase project

Brief Project Summary: This project (phase 1) will add six wildlife water troughs to recently renovated wells on the BANWR (Figure 1), filling in some of the reliable water distribution gaps on the refuge in Game Management Units 36A and 36B. Phase 2 will distribute additional troughs by connecting them to a five mile existing pipeline in 36A. Phase 3 will renovate a non-functioning windmill on recently acquired USFWS property and add a pipeline and two water storage tanks in the southern end of the refuge where permanent water is not available.

Big Game Wildlife Species to Benefit: Mule Deer, Pronghorn, White Tailed Deer, Javelina

Implementation Schedule (Month/Day/Year):

Project Start Date: 4/1/13

Project End Date: 5/1/14

Environmental Compliance:
NEPA Completed: Yes[] No[X] N/A[]
Projected Completion Date: 3/31/13 or sooner by USFWS

State Historic Preservation Office - Archaeological Clearance:
Yes[] No[X] N/A[]
Projected Completion Date: 3/31/13 or sooner by USFWS

Arizona Game and Fish Department EA Checklist: N/A[]
To be Completed by: 3/31/13
Projected Completion Date: 3/31/13

PROJECT FUNDING

Special Big Game License Tag Funds Requested:	**$** 12,240
Cost Share or Matching Funds:	**$** 135,224.64
Total Project Costs:	**$ 147,464.64**

PARTICIPANT INFORMATION

Applicant (please print): Karen Klima; Wildlife Manager GMU 36A	**Address**: 555 N Greasewood Rd. Tucson AZ 85745	**E-mail**: kklima@azgfd.gov
Telephone: 520-975-6490		**Date**: 8/30/12

AGFD Contact and Phone No. (If applicant is not AGFD personnel):

Project has been coordinated with: Mule Deer Foundation (MDF), BANWR, Arizona Antelope Foundation (AAF), Safari Club International (SCI), Bat Conservation International (BCI), Arizona Deer Association (ADA)

NEED STATEMENT – PROBLEM ANALYSIS:

Widespread water distribution on the Buenos Aires National Wildlife Refuge (BANWR) is currently dependent on rainfall. There are 151 cattle tanks on the refuge. However due to minimal maintenance since the US Fish and Wildlife Service bought the ranch in 1985, most do not hold water and those that do only have water available for a few months out of the year. Therefore, there are several areas on the refuge that have limited or no water available for wildlife during critical times of the year, specifically when pronghorn and deer are fawning. The USFWS spent $126,000 to renovate six existing wells on the property within the past two years. This project proposes to add six wildlife drinkers to those six renovated well systems. This project provides a year-round source of water in six different areas on the refuge to all wildlife species.

PROJECT OBJECTIVES:

1) Distribute year-round water in areas where dirt tanks are non-existent or unreliable
2) Distribute wildlife populations into areas not currently being utilized due to lack of water
3) Provide groundwork for future water projects (Phase 2 and 3) on the refuge including utilization of a pre-existing pipeline which runs north from Arivaca Road about 8-10 miles in unit 36A
4) Increase positive working relationships between the USFWS, AZGFD, and sportmen's groups such as the MDF, AAF, SCI, and ADA

PROJECT DESCRIPTION AND STRATEGIES:

The Buenos Aires National Wildlife Refuge was historically a productive cattle ranch in a vast grassland. Back in the 1800's, there were large herds of mule deer and pronghorn as well as ma sked bobwhite quail. In the 1850's, the homestead of Buenos Ayres was built by Pedro Aguirre, Jr., who ran a large cattle herd. According to historical records, from 1885-1892 there was a terrible drought that killed 50-70% of the cattle herds. The remainder of the cattle stripped the land of all the grasses. Without ample vegetation, natural wildfires did not burn, resulting in the invasion of brush and mesquite trees over time. Moreover, some of the ranchers actually planted mesquite to provide food and shade for their cattle. La Osa Cattle Company purchased the Buenos Aires Ranch from the daughters of Pedro Aguirre, Jr. in 1909 at a sale price of $6000. A change in ownership of the ranch took place in 1913 when Jack Kinney, a Montana rancher, purchased the Palo Alto and La Osa Ranches, which included the Buenos Aires Ranch. In the early 1920s, La Osa Cattle Company sold the southern end of its holdings to the Gill family. This included the Secundino, La Osa and Buenos Aires ranches, including the houses and 2000 head of cattle. The Gill family owned the ranch for 33 years. The ranch changed hands to the Dobson family in 1959. The J.R. Norton Company bought the ranch from the Dobson family in 1966. At that time the ranch consisted of 116,000 acres. Pruett-Wray Cattle Company, later known as the Victorio Land and Cattle Company, bought the ranch in 1972 and in 1982, the ranch was acquired by American Breco Company through a default loan covenant. The ranch has been a working cattle ranch through all its previous owners. During the Gill ownership it was also a center for breeding and raising recognized sires and dams of the American Quarterhorse Association. In 1985, the U.S. Fish and Wildlife Service purchased the Buenos Aires Ranch, and it became a National Wildlife Refuge.

Since their acquisition of the property, the refuge has focused on the restoration of grasslands.

Fire is a keystone ecological process in grasslands and an important factor in controlling the spread of mesquite while stimulating the growth of grasses and forbs. In 1988 a prescribed burning program was started in an effort to restore the historical role of fire in the grasslands and to restore the native grasses, reduce the density of woody species, and to improve habitat for wildlife. From 1988 through 2000, the refuge used cool season burns (February, March, and April). Anywhere from 10,000 to 20,000 acres ere burned each year. While many scientific publications report numerous positive affects of prescribed burning in Sonoran grassland communities, initial monitoring data from prescribed areas in the refuge showed no effect on reducing shrub density or Lehman's Lovegrass and one analysis indicated mesquite was increasing in the burned units. In 2001, the refuge shifted to summer burns in May and June with the hopes of having more effect on the mesquite. This coincides with the timing of natural monsoon lightning fires and the historical fire season.

Due to finances acquired from Obama's Stimulus Fund, for the past 2-3 years, the refuge has been able to focus on habitat restoration. In 2010-2011 the refuge created 37 mottes (small living brush piles), 20 large brush piles, revegetated 7 acres with native grasses, and aerated 952.2 acres of soil (since 2005, most in last 3 years). The refuge grubbed mesquites in three different areas on the refuge for a total of 1,999 acres in March of 2010 (mesquites were excavated and sprayed for re-sprouts). The refuge also used a chainsaw and herbicide to clear an additional 200 acres of mesquites and had plans to chainsaw another 40 acres near the headquarters. All interior fences have been removed. USFWS also removed silt and shored up berms as well as improved settling ponds and diversion dams of 12 earthen tanks in 2010. One tank in particular, Stay Tank, was cleaned out and had the berms rebuilt in the spring of 2011. However, due to the current drought and lack of precipitation, the tanks remain dry. Because of the inconsistent rainfall, it is vital for the health of wildlife populations to provide constant year-round water sources.

Pronghorn antelope were extirpated from the Altar Valley by the 1930s. Reintroductions have taken place on a number of occasions with the latest being 87 individuals released in 1987 and 87 individuals released in 2000. The population is doing poorly on the refuge. Annual surveys conducted by the Arizona Game and Fish Department indicate a downward trend in the pronghorn population which is currently estimated to be fewer than 15 individuals (See Graph 1).

Quantity and placement of water may play an important role in the survival of pronghorn. The amount of water consumed by each animal depends on body size, sex, health, lactation and physical activity as well as on humidity, ambient temperature, and availability of succulent forage. While pronghorn in northern climes drink water frequently when it is available, those in more arid regions have evolved with little or no permanent drinking water and have adapted to infrequent access to low quantities of water. These animals rely primarily on moisture from forage and on metabolic water. Overall, though, pronghorn are generally found within 2 miles of water.

Mule deer numbers have also been declining over the past 30 years (See Graph 2). Similar to pronghorn, water is vital to mule deer. AZGFD prefers permanent waters to be within 3 miles of each other to accommodate mule deer water needs.

Hunter access is excellent as 90% of the BANWR is open to hunting. The refuge allows many animals to be hunted including mule deer, white-tailed deer, and javelina. Because there designated camping areas with easy access for motor homes, the refuge is a popular place to camp and hunt during big game seasons.

In the past two years, the USFWS has spent $126,000 to renovate 6 existing wells on the BANWR using the federal stimulus money. The wells range in depth from 200-1,000 feet. Four of these wells currently have a 5,000 gallon above-ground storage tank (Figure 2). One well located at the Secundino House is restricted to 40-60 gallons of water total. This well will need a storage tank. The well at City Hall has two 5,000 gallon storage containers (Figure 3). Three of the wells are powered by solar (Figueroa, Punta, Arrieta Wash) while the other three are electric.

PROJECT LOCATION:

This project is located on the Buenos Aires National Wildlife Refuge. The refuge is located in the Altar Valley of south-central Pima County, Arizona. The northern boundary of the refuge is approximately 45 miles southwest of Tucson and the southern boundary borders Mexico. The refuge is 8 miles wide at the north end and 12 miles at its widest point. Elevation of refuge ranges from 3005 feet at the north end to 5942 feet in Brown Canyon. The average elevation is 3800 feet. See map one for details.

GPS Locations and Section, Township, Range

City Hall Well:	31° 46.927'N	111° 27.336' W	Section 18, T19S, R9E
Secundino House Well:	31° 41.783'N	111° 26.536'W	Section 17, T20S, R9E
Pozo Nuevo Well:	31° 46.715'N	111° 24.284'W	Section 15, T19S, R9E
Punta Well:	31° 39.702'N	111° 25.825'W	Section 28, T20S, R9E
Figueroa Well:	31° 37.918'N	111° 25.285'W	Section 04, T21S, R9E
Arrieta Wash:	31° 29.943'N	111° 27.069'W	Section 19, T22S, R9E

See attached maps for locations of existing permanent water sources and proposed permanent water sources.

LAND OWNERSHIP AT THE PROJECT SITE(S)*:*

The project will be conducted solely on the refuge which is owned by the US Fish and Wildlife Service.

HABITAT DESCRIPTION:

The major vegetative type is semi-desert grassland. Predominate vegetation types include Lehman's Lovegrass, Mesquite and native grasses. There are a few species of cacti including the Pima pineapple cactus, an endangered species.

ITEMIZED USE OF FUNDS:

Special Big Game License Tag Funds

Troughs, bat accessible with enclosed float valve	$940	X	6 = $5640
1" pipe	$1.50/ft X 300'	X	6 = $2700
¾" float valve and miscellaneous plumbing	$200	X	6 = $1200
5,000 gallon plastic storage tank and related plumbing		X	1 = $2700
			$12,240

Cost Share or Matching Funds (*for volunteer labor rates please refer to the worksheet below*)

USFWS cost for renovation of all 6 wells	$126,000
6 volunteers X 12 8-hour days (96 hours) X $14.14/hr	$8144.64
Trencher/Bobcat rental: 6 wells X 4 hours per well X $45 per hour	$1080
	$ 135,224.64

LIST COOPERATORS AND DESCRIBE POTENTIAL PARTICIPATION:

- AZ Game and Fish will donate equipment and labor
- USFWS will donate equipment and labor
- SCI will donate troughs and labor/project support
- MDF will donate labor/project support

- BCI will donate $3,500 (contingent on grant approval, notification in March 2013)
- ADA will donate labor/project support

WOULD IMPLEMENTATION OF THIS PROJECT ASSIST IN PROVIDING, MAINTAINING, OR FACILITATING RECREATIONAL ACCESS?
YES[] NO[X] N/A[]

PROJECT MONITORING PLAN:

Game cameras may be added to the troughs by USFWS or AZGFD personnel to assess wildlife use of troughs. Additionally, available water sources that are widely used by pronghorns will be monitored to evaluate potential impacts from predators and/or illegal human traffic. Monitoring equipment including remote motion sensor based cameras will be installed to monitor use with contiguous 24 hour/day coverage during the May through June time period. Predator avoidance or other control measures may take place if predators detected at watering sites represent a real threat to the pronghorns.

PROJECT MAINTENANCE:

USFWS and AZGFD will perform maintenance if/when required for the established systems.

PROJECT COMPLETION REPORT TO BE FILED BY:

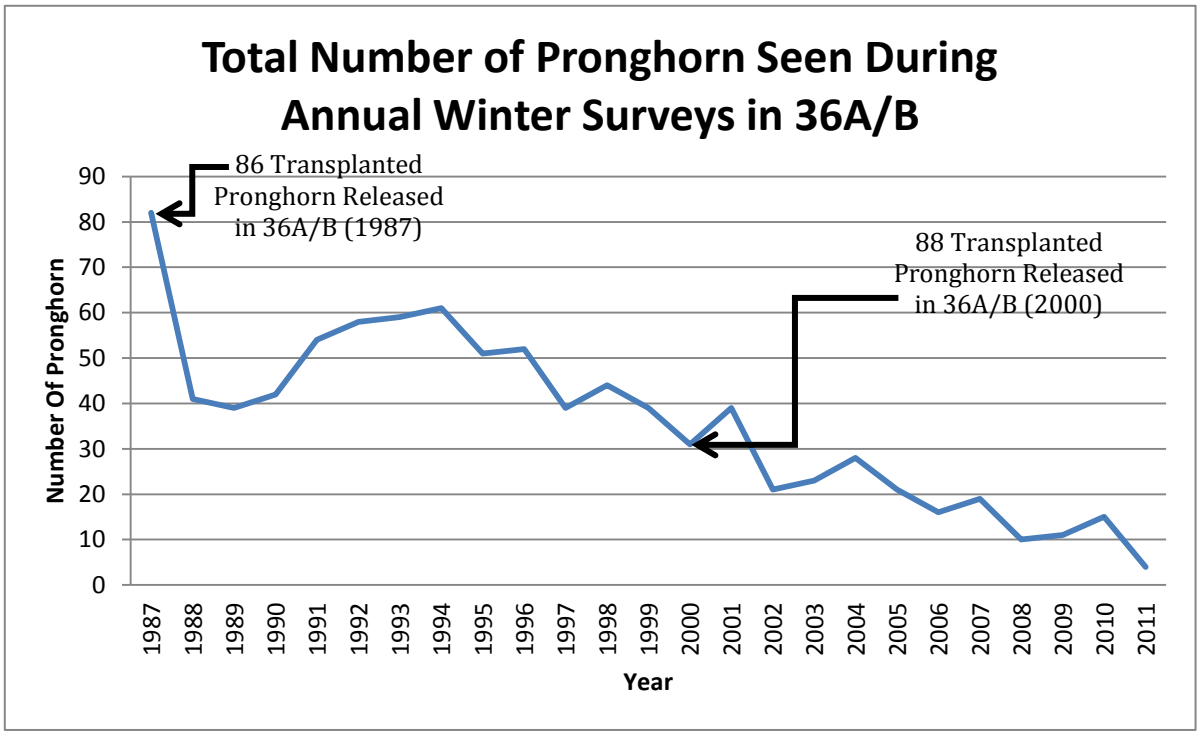
Karen Klima

WATER DEVELOPMENT PROJECTS (*please use the worksheet below***):**

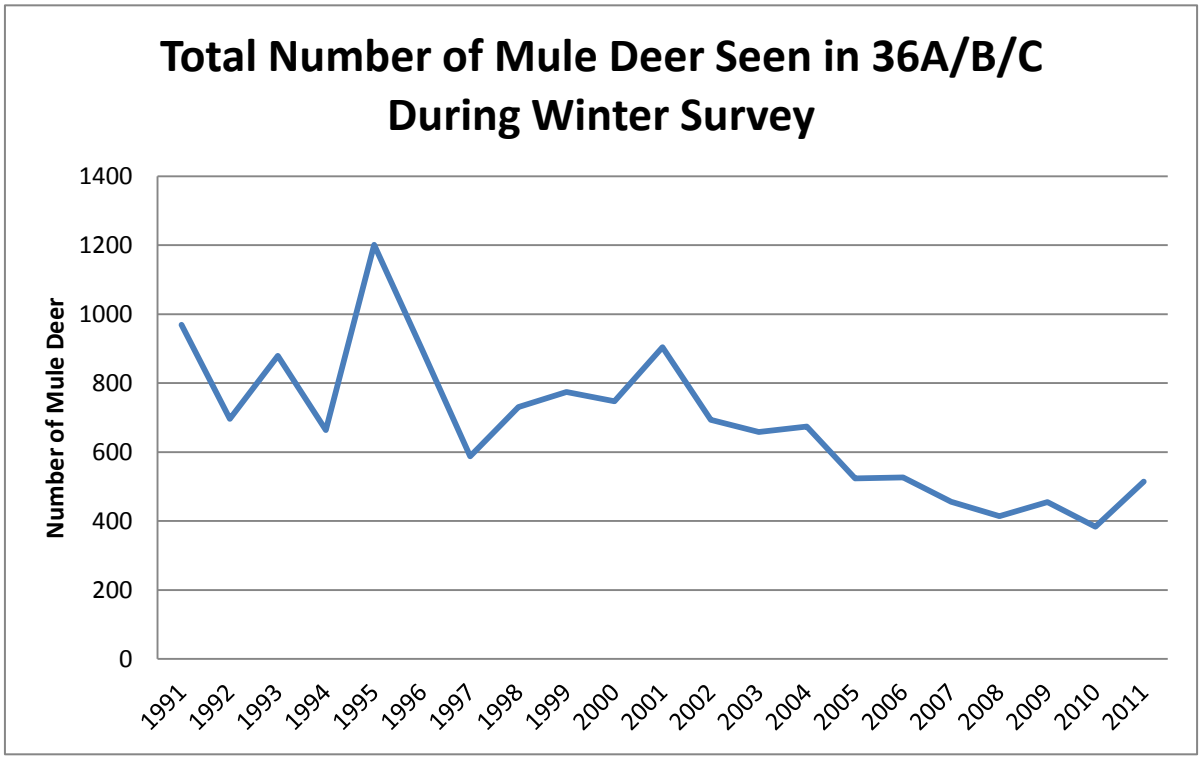
N/A

TREE CLEARING/REMOVAL PROJECTS (*please use the worksheet below***):**

N/A



Graph 1

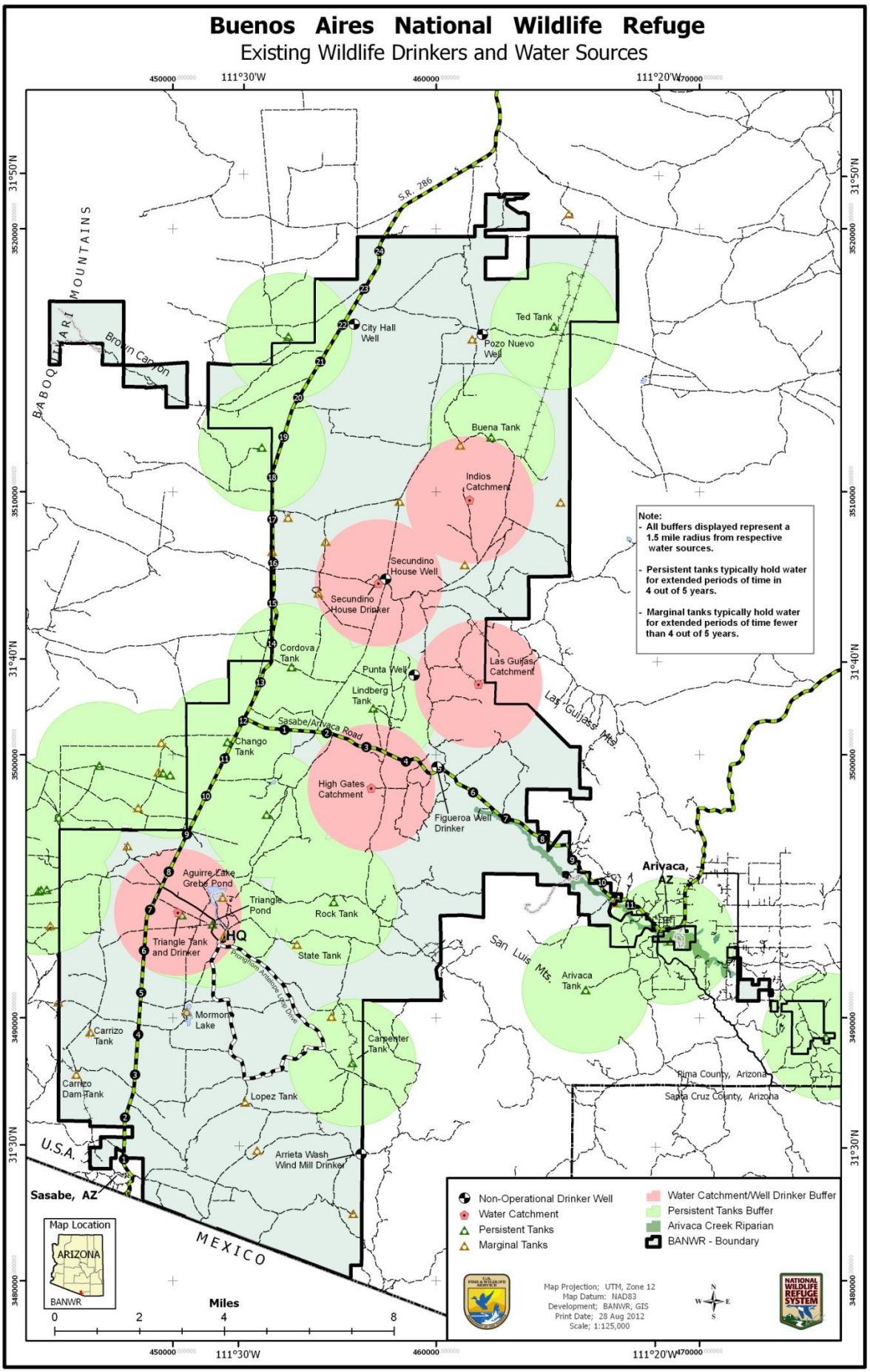


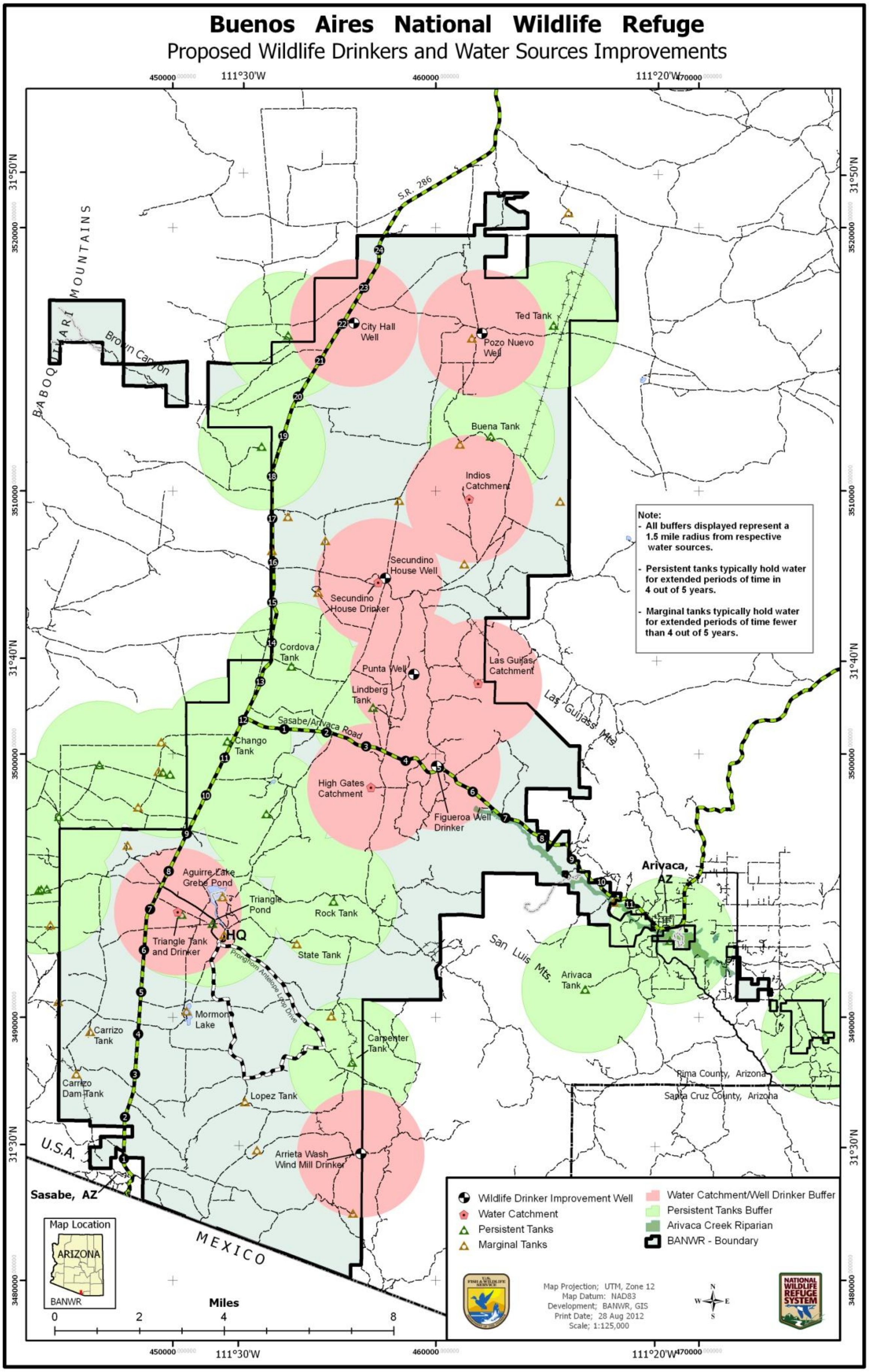
Graph 2

Figure 1: Location of the BANWR in Arizona

Figure 2: 5,000 gallon storage tank and solar panel at Figueroa Well

Figure 3: City Hall's two 5,000 gallon storage tanks (Rt.) and old unused storage tank


Buenos Aires National Wildlife Refuge
Existing Wildlife Drinkers and Water Sources
111°30'W
111°20'W
31°50'N
31°40'N
31°30'N
S.R. 286
BABOQUIVARI MOUNTAINS
Brown Canyon
City Hall Well
Pozo Nuevo Well
Ted Tank
Buena Tank
Indios Catchment
Secundino House Well
Secundino House Drinker
Cordova Tank
Punta Well
Lindberg Tank
Las Guijas Catchment
Las Guijas Mts.
Sasabe/Arivaca Road
Chango Tank
High Gates Catchment
Figueroa Well Drinker
Arivaca, AZ
Aguirre Lake
Grebe Pond
Triangle Pond
Triangle Tank and Drinker
HQ
Rock Tank
State Tank
San Luis Mts.
Arivaca Tank
Mormon Lake
Carrizo Tank
Carrizo Dam Tank
Carpenter Tank
Lopez Tank
Pima County, Arizona
Santa Cruz County, Arizona
U.S.A.
MEXICO
Arrieta Wash Wind Mill Drinker
Sasabe, AZ
Map Location
ARIZONA
BANWR
Miles
0 2 4 8
Note:
- All buffers displayed represent a 1.5 mile radius from respective water sources.
- Persistent tanks typically hold water for extended periods of time in 4 out of 5 years.
- Marginal tanks typically hold water for extended periods of time fewer than 4 out of 5 years.
Non-Operational Drinker Well
Water Catchment
Persistent Tanks
Marginal Tanks
Water Catchment/Well Drinker Buffer
Persistent Tanks Buffer
Arivaca Creek Riparian
BANWR - Boundary
Map Projection; UTM, Zone 12
Map Datum: NAD83
Development; BANWR, GIS
Print Date; 28 Aug 2012
Scale; 1:125,000
NATIONAL WILDLIFE REFUGE SYSTEM


Buenos Aires National Wildlife Refuge
Proposed Wildlife Drinkers and Water Sources Improvements
111°30'W
111°20'W
31°50'N
31°40'N
31°30'N
S.R. 286
BABOQUIVARI MOUNTAINS
Brown Canyon
City Hall Well
Pozo Nuevo Well
Ted Tank
Buena Tank
Indios Catchment
Secundino House Well
Secundino House Drinker
Cordova Tank
Punta Well
Las Guijas Catchment
Lindberg Tank
Las Guijas Mts.
Sasabe/Arivaca Road
Chango Tank
High Gates Catchment
Figueroa Well Drinker
Arivaca, AZ
Aguirre Lake Grebe Pond
Triangle Pond
Rock Tank
HQ
Triangle Tank and Drinker
State Tank
Pronghorn Antelope Loop Drive
San Luis Mts.
Arivaca Tank
Mormon Lake
Carrizo Tank
Carpenter Tank
Carrizo Dam Tank
Lopez Tank
Pima County, Arizona
Santa Cruz County, Arizona
U.S.A.
Arrieta Wash Wind Mill Drinker
Sasabe, AZ
MEXICO
Note:
- All buffers displayed represent a 1.5 mile radius from respective water sources.
- Persistent tanks typically hold water for extended periods of time in 4 out of 5 years.
- Marginal tanks typically hold water for extended periods of time fewer than 4 out of 5 years.
Wildlife Drinker Improvement Well
Water Catchment
Persistent Tanks
Marginal Tanks
Water Catchment/Well Drinker Buffer
Persistent Tanks Buffer
Arivaca Creek Riparian
BANWR - Boundary
Map Location
ARIZONA
BANWR
Miles
0 2 4 8
Map Projection; UTM, Zone 12
Map Datum: NAD83
Development; BANWR, GIS
Print Date; 28 Aug 2012
Scale; 1:125,000
NATIONAL WILDLIFE REFUGE SYSTEM